What is claimed is:

1. A plasma CVD apparatus comprising a substrate processing zone with a deposition substrate disposed therein, a plasma generating zone for generating plasma of first gas, and a plasma confining electrode for separating the substrate processing zone and the plasma generating zone and confining the first gas and having holes for passing first gas containing neutral radicals from the first gas plasma, wherein:

the plasma confining electrode has a hollow structure, accommodates gas dispersing plates for uniformalizing second gas in the plasma confining electrode, and has holes for introducing the second gas into the substrate processing zone to form a desired film on the deposition substrate by gas phase chemical reaction of the first gas containing neutral radicals and the second gas with each other; and

the vertical distance between the plasma confining electrode and the deposition substrate is no longer than 1,500 times the mean free path λ_g of blend gas of neutral radicals and the second gas in the substrate processing zone at the time of film formation.

2. The plasma CVD apparatus according to claim 1, wherein a plurality of parallel dispersing panels are disposed as the afore-said dispersing plates in the plasma confining electrode.

3. A plasma CVD film forming method comprising:

a first step of forming plasma of first gas in a plasma generating zone;

a second step of confining the plasma in the plasma generating zone with a plasma confining electrode member;

a third step, in which the plasma confining electrode member passes through holes formed therein neutral radicals from the plasma to a substrate processing zone;

a fourth step, in which the plasma confining electrode member supplies uniformalized second gas, with dispersing plates disposed in the member for uniformalizing the second gas, to the substrate processing zone with a deposition substrate disposed therein; and

a fifth step of forming a desired film on the deposition substrate by gas phase chemical reaction of the first gas containing neutral radicals and the second gas;

wherein:

the vertical distance between the plasma confining electrode member and the deposition substrate is no longer than about 1,500 times the mean free path λ_g in the substrate processing zone at the time of film generation.

4. A plasma CVD apparatus comprising a substrate processing zone with a deposition substrate disposed therein, a plasma generating zone for generating plasma of first gas, and a plasma confining electrode for separating the substrate processing zone and the plasma generating zone and confining the first gas and having

holes for passing first gas containing neutral radicals from the first gas plasma, wherein:

the plasma CVD apparatus further comprises a gas introducing member disposed between the plasma confining electrode member and the deposition substrate and having a plurality of holes, through which second gas is introduced into the substrate processing zone to form a desired film on the deposition substrate by gas phase chemical reaction between the first gas containing neutral radicals and the second gas; and

the gas introducing member has a hollow structure, accommodates dispersing plates for uniformalizing the second gas in it and is vertically spaced apart by a distance no longer than about 1,500 times the mean free path λ_g in the substrate processing zone.

5. The plasma CVD according to claim 4, wherein a plurality of parallel dispersing plates are disposed as the afore-said dispersing planes in the gas introducing member.

6. A plasma CVD film forming method comprising:

a first step of forming plasma of first gas in a plasma generating zone;

a second step of confining the plasma in the plasma generating zone with a plasma confining electrode member;

a third step, in which the plasma confining electrode member supplies first gas containing neutral radicals

through its holes from the plasma to a space between the plasma confining electrode member and a gas introducing member;

a fourth step, in which the gas introducing member passes first gas containing neutral radicals through its holes to the substrate processing zone with a deposition substrate disposed therein;

a fifth step, in which the gas introducing member supplies uniformalized second gas to the substrate processing zone with dispersing plates disposed in it for uniformalizing the second gas; and

a sixth step of forming a desired film on the deposition substrate by gas phase chemical reaction between the first gas containing neutral radicals and the second gas;

wherein:

the gas introducing member is spaced apart from the deposition substrate by a vertical distance no longer than about 1,500 times the mean free path λ_g in the substrate processing zone.